



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,897	09/16/2003	Gail A. Alverson	324758001US3	4520
25096	7590	01/24/2005	EXAMINER	
PERKINS COIE LLP			TANG, KENNETH	
PATENT-SEA			ART UNIT	
P.O. BOX 1247			PAPER NUMBER	
SEATTLE, WA 98111-1247			2127	

DATE MAILED: 01/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/663,897	Applicant(s) ALVERSON ET AL.	
	Examiner Kenneth Tang	Art Unit 2127	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 07 October 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-7, 9-11 and 13-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-11, and 13-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/7/04</u> . | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. This action is in response to the Amendment on 9/14/04. Applicant's arguments have been fully considered but were not found to be persuasive.
2. Claims 1-7, 9-11, and 13-23 are presented for examination.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. **Claims 7, 9-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Hogle et al. (hereinafter Hogle) (US 6,560,626 B1).**

4. As to claim 7, Hogle teaches a method in a computer system for assigning a processor resource to a thread of a task, the method comprising:

under control of a thread of the task, invoking an operating system call that will block and wait for the occurrence of an event (*col. 1, lines 33-67*); and

under control of the operating system, when the call is blocked, invoking a routine of the task so that the routine can assign the processor resource to another thread of the task (*col. 7, lines 63-65*).

wherein the processor resource is a stream (resource) of a processor that supports multiple streams (*col. 1, lines 7-9, and Fig. 1, items 22, 32-34*).

5. As to claim 9, Hogle teaches wherein the task registers the routine with the operating prior to invoking the operating system call (*col. 1, lines 21-22*).

6. As to claim 10, Hogle teaches notifying the task when a operating system call completes (*col. 5, lines 47-57 and col. 6, lines 15-21*).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 1-6 and 11, 13-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hogle et al. (hereinafter Hogle) (US 6,560,626 B1) in view of Jones et al. (hereinafter Jones) (US 6,584,489 B1).**

8. As to claim 1, Hogle teaches a method in a computer system for returning a stream to a task executing an operating system call that is blocked, the computer system having a processor with multiple streams, the method comprising:

under control of the operating system executing on a stream, invoking a function provided by the task (*col. 1, lines 21-32*);

under control of the invoked function, executing that stream (*col. 1, lines 32-59*); and

under control of the operating system, notifying the task when the operating system call is complete (*col. 5, lines 47-57 and col. 6, lines 15-21*).

9. Hogle teaches that thread functions are not available during its blocked state (*col. 1, lines 46-47*) but fails to explicitly teach returning a stream to a task when an operating system call is blocked. However, Jones teaches task scheduling with returning the requesting thread when it is blocked (*col. 27, lines 10-22*). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the feature of returning a stream to a task when an operating system call is blocked because it is desirable to return (or not keep) the threads that are supposed to be blocked.

10. As to claim 2, Hogle teaches wherein the notifying includes invoking a function provided by the task using a stream of the operating system; and

under control of that invoked function, indicating that the operating system call is complete (*col. 6, lines 15-21*); and

invoking another operating system call to return the operating system stream to the operating system (*col. 6, lines 15-21*).

Art Unit: 2127

11. As to claim 3, Hogle teaches wherein the executing of instructions on that stream includes indicating that a thread that invoked the operating system call is blocked and executing another thread on that stream (*col. 7, lines 61-65*).

12. As to claim 4, it is rejected for the same reasons as stated in the rejection of claim 1. In addition, Hogle in view of Jones fails to explicitly teach having separate components performing different actions. However, it is well known in the art and it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the feature of components performing different actions because this increases structure and organization.

13. As to claim 5, it is rejected for the same reasons as stated in the rejection of claim 2.

14. As to claim 6, it is rejected for the same reasons as stated in the rejection of claim 3.

15. As to claim 11, it is rejected for the same reasons as stated in the rejection of claim 7. In addition, Hogle in view of Jones fails to explicitly teach having separate components performing different actions. However, it is well known in the art and it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the feature of components performing different actions because this increases structure and organization.

16. As to claim 13, it is rejected for the same reasons as stated in the rejection of claim 9.

Art Unit: 2127

17. As to claim 14, it is rejected for the same reasons as stated in the rejection of claim 10.
18. As to claim 15, it is rejected for the same reasons as stated in the rejection of claim 1.
19. As to claim 16, Hogle teaches wherein the operating system invokes the first function using the stream that will block (*col. 2, lines 18-30*).
20. As to claim 17, Jones teaches wherein invoking the first function returns the stream to the user program (*col. 27, lines 10-22*).
21. As to claim 18, Hogle teaches wherein the user program selects a thread that is not blocked for execution on the stream (*col. 7, lines 50-65*).
22. As to claim 19, Jones teaches wherein the second function schedules for restarting a thread that was blocked on the operating system call that was blocked (*col. 6, lines 51-67*).
23. As to claim 20, Jones teaches wherein the second function returns a stream provided by the operating system (*col. 27, lines 10-22*).
24. As to claim 21, it is rejected for the same reasons as stated in the rejection of claims 1 and 7. In addition, Hogle teaches executing the operating system call in a user stream of the user program (*col. 6, lines 22-34*), when a thread making the operating system call is locked, waiting

Art Unit: 2127

for the operating system call to become unblocked (*col. 1, lines 33-45*), and under control of a trap handler routine, placing the thread in a blocked pool and selecting another thread to execute on the stream (*col. 2, lines 13-30 and col. 7, lines 63-65*).

25. As to claim 22, it is rejected for the same reasons as stated in the rejection of claim 19.

26. As to claim 23, it is rejected for the same reasons as stated in the rejection of claim 20.

### ***Response to Arguments***

27. *Applicant argues on page 8 of the Remarks that the Hogle reference does not use the term "stream" or any language that could possibly correspond to such a stream.*

However, the Examiner respectfully disagrees. Hogle teaches using a resource of a processor with thread execution in a multi-threaded processing environment (*e.g., col. 2, lines 7-10*), while Jones teaches the same thing (*col. 22, lines 12-30*).

### ***Conclusion***

28. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- a. **Peters et al. (US 5,668,993)** discloses a method in a computer system for assigning a processor resource to a thread of a task, the method comprising: under control of a thread of the task, invoking an operating system call that will block and wait for the occurrence of an event; and under control of the operating system, when the call is blocked, invoking a routine of the task so that the routine can assign the processor



Art Unit: 2127

resource to another thread of the task, wherein the processor resource is a stream of a processor that supports multiple streams.

29. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth Tang whose telephone number is (571) 272-3772. The examiner can normally be reached on 8:30AM - 6:00PM, Every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2127

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kt  
1/15/05



MENG-AL T. AN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100